



THE SCIENCE OF READYSM

SOUTH 4 GROUP FIRE

Port Neches, TX

Preliminary Community Air Monitoring

Data Summary

December 9, 2019

Project #112312

1.0 Introduction

On November 27, 2019 at approximately 04:00 Central Standard Time (CST), TPC Group requested that CTEH® provide air monitoring and analytical air sampling support in response to a tank fire at the TPC Group facility located in Port Neches, Texas. CTEH® arrived on-site on November 27, 2019 at 08:00 CST and began real-time air monitoring and analytical air sampling operations at approximately 10:00 CST.

This report summarizes real-time air monitoring data collected from December 8, 2019 06:00 CST to December 9, 2019 06:00 CST within the community.

2.0 Air Monitoring and Sampling Methods

CTEH® developed and implemented an Air Sampling Analysis Plan (SAP) to document and quantify the potential release of fugitive emissions from the incident at ground level. The SAP has been approved by local, state, and federal representatives of the on-site Unified Command (UC). In accordance with the SAP, sustained 1,3-butadiene detections of 0.5 ppm or greater and volatile organic compound (VOC) detections of 5.0 ppm or greater in the community are to be communicated to the Federal On-Scene Coordinator.

Real-time air monitoring was conducted for 1,3-butadiene, benzene, carbon monoxide (CO), fine-sized particulate matter (PM_{2.5}), nitrogen dioxide (NO₂), volatile organic compounds (VOCs), and atmospheric flammability measured as the percentage of the lower explosive limit (%LEL). Real-time air monitoring was conducted using handheld instruments including Dräger X-PID 8500, MultiRAEs, UltraRAEs, and TSI SidePak™ AM510/AM520 Aerosol Monitors. All instrumentation was calibrated at least once per day or per manufacturer's recommendations. Target analytes were measured as listed in **Table 1** below. Roaming air monitoring was performed in community areas with handheld instruments. All handheld air monitoring was conducted in the breathing zone.

In addition, CTEH® also collected analytical air samples for analysis of airborne VOCs, polynuclear aromatic hydrocarbons (PAHs) and asbestos in the surrounding community at the time of this report. These samples are sent to a 3rd-party accredited laboratory for subsequent chemical analysis. Air sampling data will be summarized in a separate report.

3.0 Air Monitoring Results

Attachment A provides maps of the locations of handheld air monitoring and analytical air sampling in community residential areas, as well as a map of zones within the community. A cumulative summary of the community handheld air monitoring results is presented in **Table 1**. **Table 2** and **Table 3** include a subset of the cumulative data provided in Table 1 and summarize the results of handheld air monitoring conducted in Zones 1 and 8, respectively.

Table 1: Community Handheld Real-Time Air Monitoring Results (All Zones)

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	249	25	0.08 - 0.30 ppm
	UltraRAE	2,005	2	0.09 - 0.50 ppm
Benzene	Drager X-PID 8500	206	0	< 0.02 ppm
Carbon Monoxide (CO)	MultiRAE	12	0	< 1 ppm
%LEL	MultiRAE	1,197	0	< 1 %
Nitrogen Dioxide (NO ₂)	MultiRAE	25	0	< 0.1 ppm
Particulate Matter (PM _{2.5})	AM510	298	298	0.014 - 0.094 mg/m ³
	AM520	35	35	0.0056 - 0.108 mg/m ³
VOCs†	MultiRAE	2,333	10	0.1 - 0.1 ppm

* If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds.

Table 2: Zone 1 Community Handheld Real-Time Air Monitoring Results†

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	73	15	0.09 - 0.3 ppm
	UltraRAE	402	0	< 0.01 ppm
Benzene	Drager X-PID 8500	63	0	< 0.02 ppm
%LEL	MultiRAE	308	0	< 1 %
Particulate Matter (PM _{2.5})	AM510	57	57	0.014 - 0.059 mg/m ³
	AM520	35	35	0.036 - 0.108 mg/m ³
VOCs†	MultiRAE	469	3	0.1 - 0.1 ppm

* If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QAQC and should be considered preliminary at this time. †Volatile organic compounds. ‡These results are a subset of the results provided in Table 1.

Table 3: Zone 8 Community Handheld Real-Time Air Monitoring Results[‡]

Analyte	Instrument	# of Readings	# of Detections	Range*
1,3-Butadiene	Drager X-PID 8500	106	9	0.08 - 0.29 ppm
	UltraRAE	194	2	0.09 - 0.5 ppm
Benzene	Drager X-PID 8500	75	0	< 0.02 ppm
Carbon Monoxide (CO)	MultiRAE	12	0	< 1 ppm
%LEL	MultiRAE	252	0	< 1 %
Particulate Matter (PM _{2.5})	AM510	97	97	0.018 - 0.071 mg/m ³
VOCs [†]	MultiRAE	299	7	0.1 - 0.1 ppm

* If no detection was observed, the instrument detection limit preceded by a "<" symbol is listed. These data have not undergone QA/QC and should be considered preliminary at this time. [†]Volatile organic compounds. [‡]These results are a subset of the results provided in Table 1.

During this reporting period, one detection of 1,3-butadiene was recorded at the UC-approved action level of 0.5 ppm. This detection was a peak reading on the instrument and was not sustained at this concentration. No detections of benzene, CO, %LEL, or NO₂ were observed in the community during this reporting period. VOCs were detected infrequently, and all detections of VOCs were reported below the action level for VOCs approved by UC. The average of the detections for all PM_{2.5} readings collected during this reporting period was 0.039 mg/m³.

4.0 Weather Conditions

Attachment B contains a wind rose depicting wind speed and direction for this reporting period. Data were acquired from the Nederland High School (C1035) meteorological station located on 2108 N 18th St approximately 4 miles west of the incident site.

Attachment A

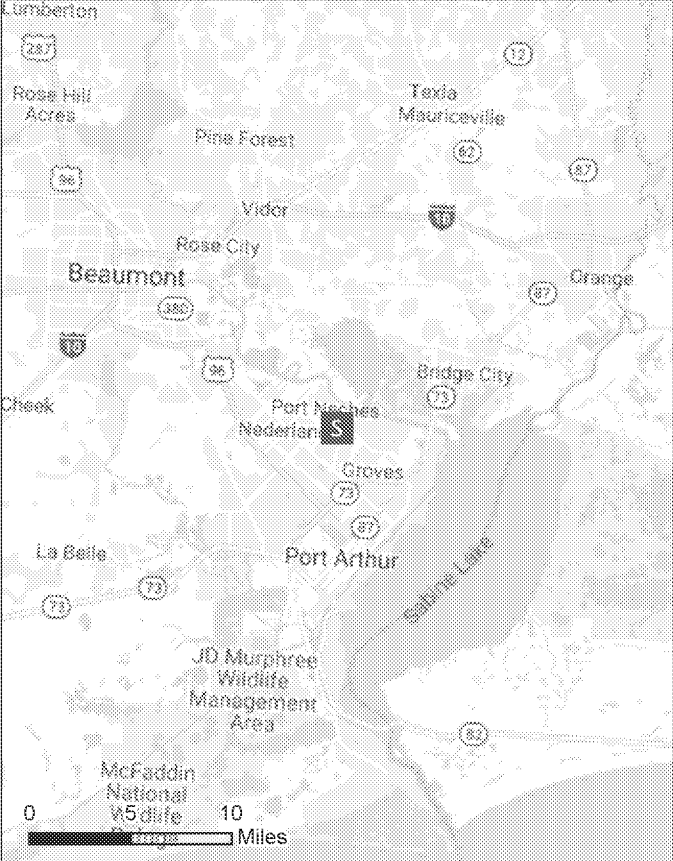
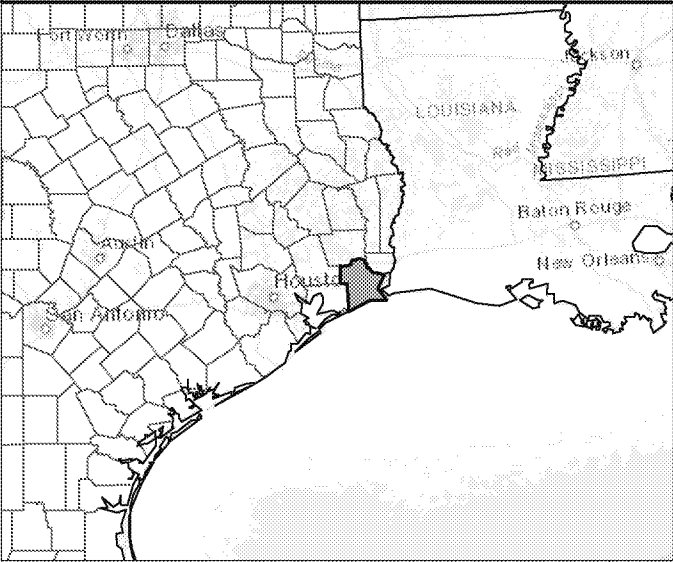
CTEH Community Air Monitoring Locations



Site Location
South 4 Group Fire | Port Neches, TX



Project: 112312
Client: TPC Group
City: Port Neches, TX
County: Jefferson



S Site Location



Handheld Real-Time Community Monitoring Locations

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



0 0.5 1 Miles

COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 12/9/2019 7:38:13 AM



Handheld Real-Time Community Monitoring Locations (Benzene)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson





Handheld Real-Time Community Monitoring Locations (1,3-Butadiene Non Detects)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



0 0.5 1 Miles

COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 12/9/2019 8:03:43 AM



Handheld Real-Time Community Monitoring Locations (1,3-Butadiene Detections)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 12/9/2019 7:53:37 AM



Handheld Real-Time Community Monitoring Locations (Carbon Monoxide)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson





Handheld Real-Time Community Monitoring Locations (%LEL)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



S

Site Location

●

< 1.0 %

□

Zone 1

□

Zone 8



Handheld Real-Time Community Monitoring Locations (NO₂)

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



COORDINATE SYSTEM: NAD 1983 UTM Zone 15N DATUM: North American 1983

LAST UPDATED: 12/9/2019 8:26:49 AM



Handheld Real-Time Community Monitoring Locations (PM_{2.5})

South 4 Group Fire | Port Neches, TX | 12/8/2019 06:00 - 12/9/2019 06:00 CST



Project:112312
Client: TPC
City: Port Neches, TX
County: Jefferson



S

Site Location

Detection Range

●

0.006 - 0.108 mg/m3

Zone 1

Zone 8



0 0.5 1 Miles

Attachment B

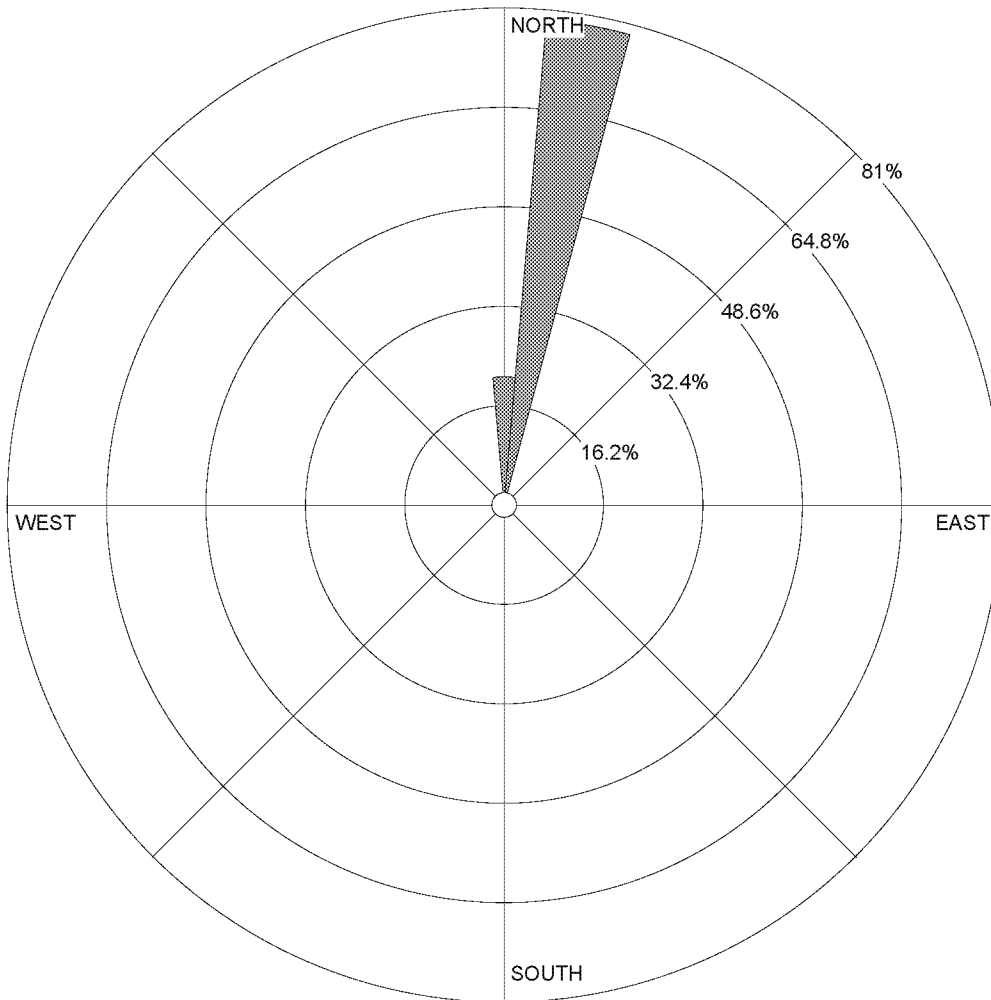
Meteorological Conditions

WIND ROSE PLOT:

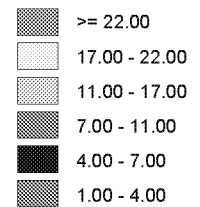
South 4 Group Fire
Dec 8, 2019 06:00 to Dec 9, 2019 06:00

DISPLAY:

Wind Speed Direction
(blowing from center point)



WIND SPEED
(Knots)



Calms: 0.00%

COMMENTS:

COMPANY NAME:

CTEH, LLC

MODELER:

Chance Gilliam

CALM WINDS:

0.00%

TOTAL COUNT:

24 hrs.

AVG. WIND SPEED:

131.50 Knots

DATE:

12/9/2019

PROJECT NO.:

112312

WRPLOT View - Lakes Environmental Software